L 19189-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HW
ACCESSION NR: AR3004202 S/0276/63/000/005/V008/V008

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 5V42 67

AUTHOR: Sokolov, L. N.; Kiritsev, A. D.; Andryushchenko, P. P.; Kostyuchenko, N. T.

TITLE: Effect of forging reduction ratio on mechanical properties of forgings from a 20t ingot of steel 45 14 16

CITED SOURCE: Sb. Nauchn. tr. Zhdanovsk. metallurg. in-t, vyp 8, 1962, 140-145

TOPIC TAGS: forging method, anisotropy forging, forging reduction ratio, steel 45

TRANSLATION: The total forging reduction ratio is determined as the product of particular forging reduction ratio during draw-out without taking into account the forging reduction ratio at upsetting. Investigations were carried out on forgings of 20t ingots from steel 45 at 40% upsetting and elongation with ukovs of 1.5 to 7. Anisotropy of mechanical properties, that was greater in grain direction, was observed in forged metal; sigma sub b sigma sub s depend little on forging reduction ratio and on the direction of grain in the forging; psi, delta and a_k change more markedly when forging reduction ratio increases. Forging reduction ratio of 2.5 to 3.0 should be considered optimum in forging without

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upsetting, in order to obtain isotropic properties; in the case when there is upsetting optimum forging reduction ratio is 3 to 4. Four figures, 6 references. I. Gendlina.

DATE ACQ: 21Jun63 SUB CODE: IE ENCL: 00

Card 2/2

RUDA, S.P.; KOSTYUCHENKO, T.S.

Studying the pathogenicity of yeastlike fungi of the genus Candida isolated from pathological material. Visnyk Kyiv.un. no.5. Ser. biol. no.2:88-90 '62. (MIRA 16:5)

(MONILIASIS)

PALETSKAYA, L.N.; LOBOVA, Ye.V.; LAVROV, A.P.; RABOCHEV, I.S.; BABAYEV, A.G.; TRAPEZNIKOV, F.F.; KOSTYUCHENKO, V.P.; NOSOV, A.K.

Grigorii Il'ich Dolenko, 1886-1964; an obituary. Pochvovedenie no.5:119-120 My '65. (MIRA 18:5)

GEMBITSKIY, Ye.V.; KOSTYUCHENOK, V.V.(Leningrad)

Acute erythremia. Klin.med.33 no.7:64-69 Jl '55.(MLRA 8:12)

1. Iz kafedry gospital'noy terapii (nach-chlen-korrespondent AMN SSSR prof. N.S.Molchanov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova)
(POLYCYTHEMIA VERA
erythomic myelosis)

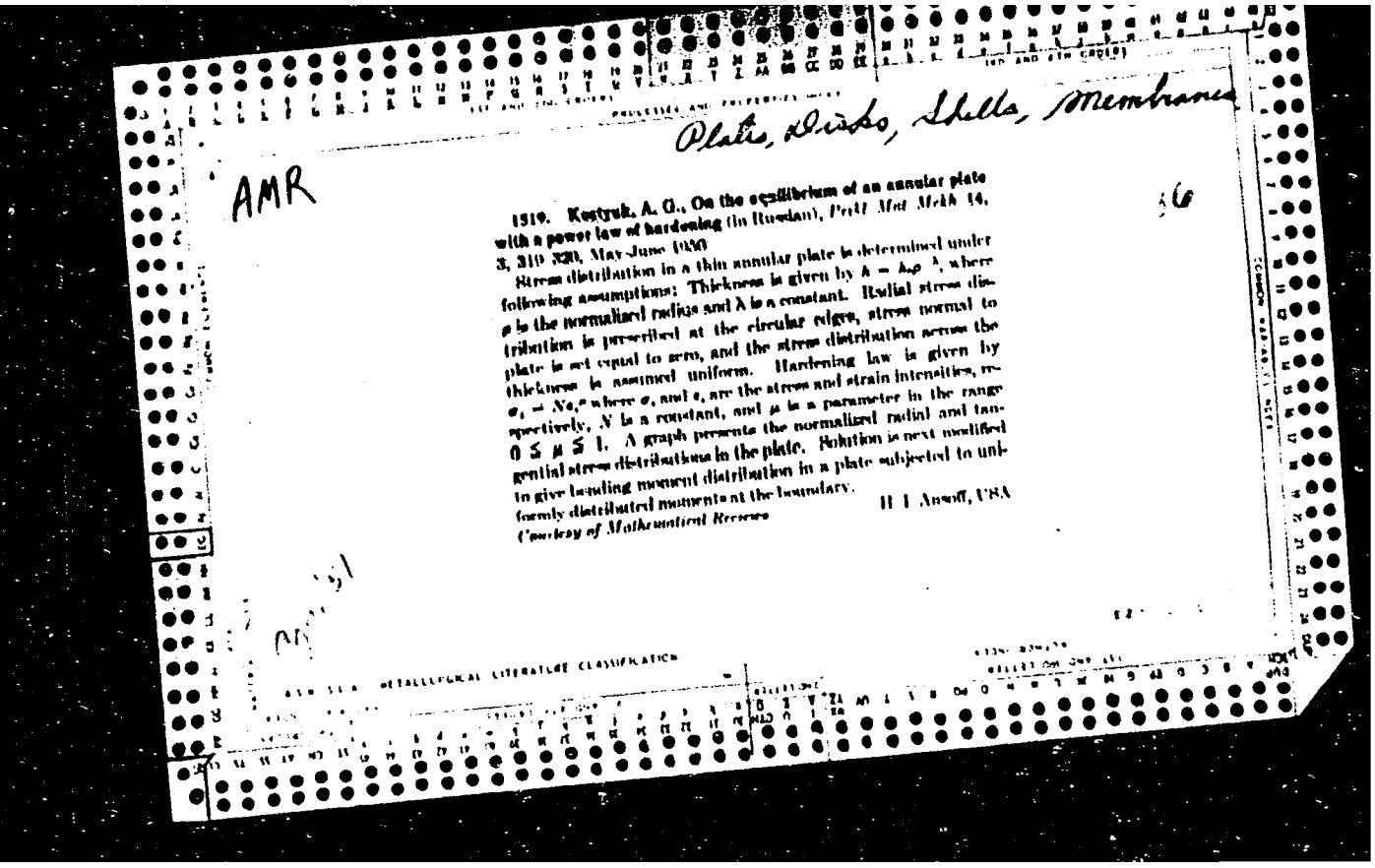
KOSTYUK, A. (Kamenets-Podol'sk, USSR).

The best motion-picture operator in Kamenets-Podol'sk Province. Kinomekhanik no.9:16 S '53. (MLRA 6:9)
(Moving-picture projection)

KOSTYUK, A. G.

Kostyuk, A. G. - "On the elastic deformation of a rotating ring under the effect of centrifugal forces," (Computation of the steam turbine governor), Trudy Studench. nauch.-tekhn. o-va (Mosk. energet. in-t im. Molotova), Issue 3, 1949, p. 38-44

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)



Plates, Disks, Shells, Membranes

AMR

1519. Kestruk, A. G., On the equilibrium of an annular plate with a power law of hardening (in Russian), *Prikl. Mat. Mekh.* 14, 3, 319-320, May-June 1950.

Stress distribution in a thin annular plate is determined under following assumptions: Thickness is given by $h = h_0 \rho^{\lambda}$, where ρ is the normalized radius and λ is a constant. Radial stress distribution is prescribed at the circular edges, stress normal to plate is set equal to zero, and the stress distribution across the thickness is assumed uniform. Hardening law is given by $\sigma_i = N\epsilon_i^{\mu}$ where σ_i and ϵ_i are the stress and strain intensities, respectively, N is a constant, and μ is a parameter in the range $0 \leq \mu \leq 1$. A graph presents the normalized radial and tangential stress distributions in the plate. Solution is next modified to give bending moment distribution in a plate subjected to uniformly distributed moments at the boundary.

H. I. Ansoff, USA

(Courtesy of *Mathematical Reviews*)

KOSTYUK, A. G.

"Some Problems of Creeping of Turbine Disks." Sub 23 Nov 51, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

KOSTYUK, A. G.

Elasticity and Plasticity, Plasticity, Creep, Strength (2265)
Inzhenernyy Sbornik, Vol 15, 1953, pp 15-20
Kostyuk, A. G.
"Stresses in a Rotating Disk During Creep"
Discusses creep of a rotating disk of varying thickness and presents the author's solution by the method of successive approximations.

Referativnyy Zhurnal--Mekhanika, No 2, Feb 54; SO: (W-30785, 28 July 1954)

KOSTYUK, A. G.

USSR/Mathematics - Elasticity Theory Sep/Oct 53

"Calculation of the Profile of a Revolving Disk For Conditions of Creep," A. G. Kostyuk, Moscow, Moscow Power Eng Inst

Priklad Matem i Mekhan, Vol 17, No 5, pp 615-618

Treats the problem of determining the profile of a revolving disk under conditions of stationary creep according to a given law of variation of stresses or strains along the radius. Assumes the temperature

276T89

field to be polar-symmetrical and the law of creep to be arbitrary. Presented 24 Jun 53. Refers to a related work of Yu. N. Rabotnov ("Disk of Uniform Resistance," PMM, Vol 12, No 4, 1948).

KOSTYUK, A. G.

USSR

62

V1536. Kostyuk, A. G., Temperature fields of turbine disks (in Russian), *Izv. Akad. Nauk Otd. tekh. Nauk* no. 6, 25-36, June 1954.

Determination of temperature field in cooled turbine disks is a substantial part of technical economic calculations in designing arrangements of this kind. Mathematical considerations in this branch of engineering science are rather difficult, reliable formulas and exact physical data are not known, and related problems are often treated under too simplified presuppositions. As a rule, due attention is not paid to such factors as the form of disks, mutual exchange of heat between their parts, the quantity of the cooling air, the influence of the coefficient of heat transfer from disks to ambient cooling air, and many others.

Based on a detailed analysis of his own numerous mathematical solutions of the problem on steady temperature fields in turbine disks, author carefully studies all factors mentioned above. His discussion presupposes reasonable knowledge of the theory of Bessel and hypergeometric functions. Calculations are quite correct and, apart from some minor misprints, reviewer has not found any error in the paper. Of course, resulting formulas are rather complicated and, therefore, reader finds welcome intuitive diagram suitable for technical use.

Paper is doubtless a valuable enrichment of the theory of turbines. It deserves the careful attention of interested specialists.

V. Vodička, Czechoslovakia

KOSTYUK, A. G.

Kostyuk, A. G. Stresses in a continuous rotating cylinder [illegible] limit. Akad. Nauk SSSR. Prikl. Mat. Meh. 18, 453–456 (1954). (Russian)

The author examines the effect of elastic compressibility on the limiting speed of rotating cylinders. Expressing stress as a series expansion of powers of a small parameter, the first two sets of stress correction terms are evaluated for a general total strain type law. Specializing to a case in which effective stress is proportional to the nth power of the effective strain, it is shown that compressibility reduces the limiting speed except when n is large. No numerical values are given. *R. M. Haythornthwaite.*

KOSTYUK, A.G.

PHASE I BOOK EXPLOITATION 446

Sherstyuk, Aleksandr Nikolayevich

Ventilyatory i dymososy (Ventilators and Exhaust Fans) Moscow, Gosenergoizdat, 1957. 183 p. 7,000 copies printed.

Ed.: Nevel'son, M.I.; Tech. Ed.: Medvedev, L.Ya.

PURPOSE: This is a textbook on blowing engines for students of power engineering institutes and it may also be useful to engineers engaged in designing and operating such equipment.

COVERAGE: This book deals with design and operation of exhausters and fans. Special emphasis is placed on forced draft fans used in heat power plants. The book contains contributions of the Heat Engineering Department of the Moscow Power Engineering Institute. The author begins with the basic concepts of hydraulics and proceeds to the use of models for fan design and selection. Operation and testing of fans are also discussed. One chapter is devoted to modern types of fans and exhausters manufactured in

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the Soviet Union. Chapter 9 (Fan Design [illegible]) by R.G. Kostyuk, Docent, Moscow Institute of Power Engineering. There are 64 references, of which 59 are Soviet, 3 German, and 2 English.

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Ventilators and Exhaust Fans 446

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R000825310014-7"

SAMOYLOVICH, Georgiy Semenovich; TROYANOVSKIY, Boris Mikhaylovich; KOSTYUK, A.G., red.; MEDVEDEV, L.Ya., tekhn.red.

[Steam turbines; a collection of problems] Parovye turbiny; sbornik zadach. Izd. 2-oe, dop. i perer. Moskva, Gos. energ. izd-vo, 1957. 274 p. (MIRA 11:2)
(Steam turbines--Problems, exercises, etc.)

KOSTYUK A.G. 1-5

Grigorenko, Ya. M. and Isakhanov, G.V. 24-2-27/28

Scientific Conference on the strength of elements of turbo-machinery at elevated temperatures. (Nauchnoye soveshchaniye po voprosam prochnosti elementov turbomashin pri vysokikh temperaturakh).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, No.2, pp. 165-167 (USSR).

ABSTRACT: A scientific conference was held in Kiev between September 28 and October 2, 1957 on problems of strength of elements of turbo-machinery at elevated temperatures which was convened by the Institute of Metallo-Ceramics and Special Alloys (Institut Metallokeramiki i Spetsplavov), the Institute of Structural Mechanics (Institut Stroitel'noy Mekhaniki) and the Institute of Thermal Power (Institut Teploenergetiki Akademii Ukrainskoy SSR) of the Ac.Sc., Ukrainian SSR. Many people participated representing scientific and industrial establishments and works of Moscow, Leningrad, Kiev, Kharkov, Minsk, Kuybyshev, etc. In his opening address Corresponding Member of the Ac.Sc. Ukrainian SSR, [illegible] pointed out the importance of the problem of high temperature strength of components of turbo-[illegible]

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Scientific Conference on the strength of elements of [illegible] machinery at elevated temperatures.

A number of papers were read relating to the theory of heat conductivity and thermo-elasticity. In his paper "Investigation of the temperature fields in turbine rotors" Ye. P. Dyben reported on the theoretical and experimental investigations of the steady state and the non-steady state thermo-conductivity in turbine rotors of various designs including investigations on concrete specimens of rotors produced by the Kirov and Neva Works, the "Ekonomayzer" Works and others, carried out at the Institute of Thermal Power, Ukrainian Ac.Sc. In studying the temperature fields they used the method of laboratory investigation of non-steady state thermal conductivity by means of high frequency heating, the method of electro-thermal analogy by means of "ЭГДА" equipment etc. They obtained a solution of the problem of non-steady state thermal conductivity of a hollow cylinder of finite length with a relatively general law of the changes of the temperature and the heat transfer coefficients. The Institute, jointly with the Experimental Gas Turbine Construction Works, developed a method of cooling the discs by blowing cooling air through the

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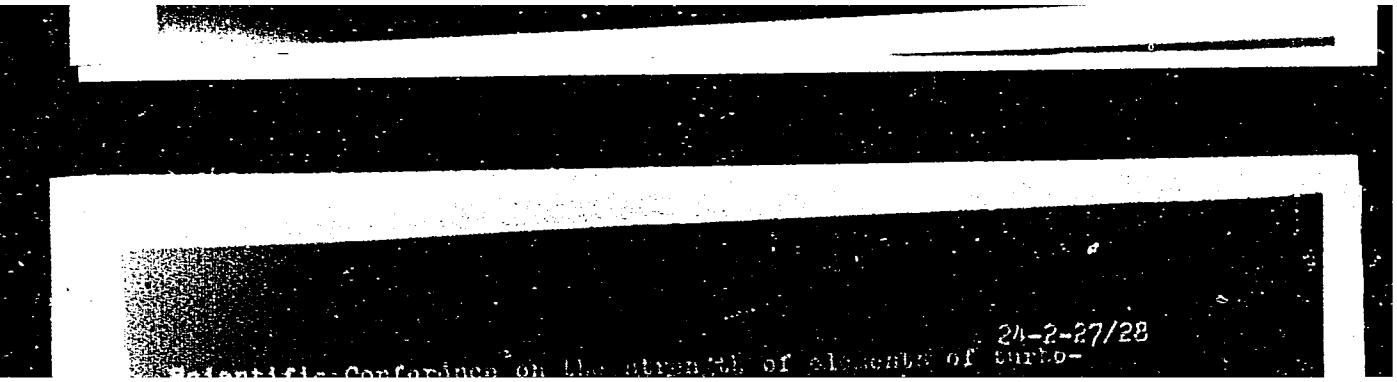
Scientific conference on the strength of elements of turbo-machinery at elevated temperatures.

system in which the following elements operate jointly: discs, shells and ring-shaped rods.

In his paper "Certain Methods of Solving the Axis-



SOV/24-59-3-12/33

AUTHOR: Kostyuk, A. G. (Moscow)

TITLE: Unsteady Temperature Field Due to Heat Shock in Connection with the Determination of Thermal Stresses in Turbine Parts

PERIODICAL: Izvestiya Akademii nauk SSSR Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1959, Nr 3, pp 85-89 (USSR)

ABSTRACT: It is assumed: (1) that the temperature at the surface of the body rises rapidly to a certain value and then remains steady; (2) that the quantity $a\tau/L^2$ is small, where τ is time, a is the diffusivity and L is a characteristic dimension of the body; (3) that the Biot criterion $\alpha L/\lambda$ is large, where α is the coefficient of heat exchange and λ is the thermal conductivity; (4) that the heat flow is normal to the surface of the body. The differential equation corresponding to these conditions is set up, allowing for the curvature of the surface of the body, and solved approximately. A formula is then derived for the temperature in the region of an edge formed by two surfaces of a component meeting at a right angle. The method enables the temperature field in a seamless forged gas turbine rotor to be calculated and the temperature distribution in a drum type of rotor is shown graphically (Fig 4) after 16 min, the time corresponding to

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Unsteady Temperature Field Due to Heat Shock in Connection with the Determination of Thermal Stresses in Turbine Parts

the maximum temperature difference between the periphery and the centre. The results are compared with those of a similar investigation by Molchanov (Ref 2). The solution is also applied to the determination of the temperature distribution in a disc. There are 5 figures and 2 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute)

SUBMITTED: January 28, 1959.

SOV/96-59-10-4/22

AUTHORS: Kostyuk, A.G. (Cand.Tech.Sci.) and Sokolov, V.S. (Engineer)

TITLE: Electrical Modelling of Temperature Distribution in Turbine Rotors

PERIODICAL: Teploenergetika, 1959, Nr 10, pp 22-27 (USSR)

ABSTRACT: The axially-symmetrical temperature field of a turbine rotor may be modelled for calculation by an integrator type EGDA: it is sufficient to simulate a wedge-shaped longitudinal sector of the rotor. For use with integrator type EGDA-6/53 the model may be made of several layers of electrically conducting paper, pasted together as indicated in Fig 1. The method of selecting the radius of each layer of paper is described with reference to Fig 1a and a simple formula is given. In order to check that a suitable number of pieces of paper have been used and to determine the accuracy of the method, the results of temperature field modelling are compared with a standard based on accurate calculations of steady-state thermal conductivity for several simple solids of rotation. For example, an accurate solution of the equations of thermal conductivity for a solid cylinder with the boundary conditions indicated in Fig 2 may be

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represented by a series of the form shown in Eq (1). Results obtained from the model are compared with theoretical values derived from Eq (1) in Figs 3 and 4. Fig 3 shows the temperature distribution across a disc at the centre of the cylinder, and Fig 4 the temperature distribution along the axis of the cylinder, compared with temperature values found for a four-layer model. A method of modelling the roots of turbine blading is then considered. When the blades are fixed into an annular slot it is easy to model the temperature field by selecting a strip of appropriate width and length to represent the resistance of the working part of the blading and to represent the rotor and fixing zone by means of a multi-layer wedge, as shown in Fig 1. When the ends of the blades are fitted into slots in the disc the rotor is not axially symmetrical in the fixing zone and, therefore, the temperature field of the fixing zone and of the actual rotor must be considered separately. An approximate method of modelling in this case is described on the assumption that the temperature field in the blade fixing zone is approximately uniform. It is well established that the main heat flow in the root

fixing zone is directed from the periphery towards the centre. It is accordingly possible to determine the parameters of the equivalent plane model of a blade root fixing for which the law of change of temperature in a radial direction is close to the real one. Since the main heat flow in the root fixing is radial, it is necessary that the radial thermal conductivity of the fixing details should be the same for the actual part and for its plane model. This condition is given by Eq (2), which may be used to calculate the sections of the plane model at the most important sections shown in Fig 5. Fig 5 also gives in dotted lines the outline of the plane model and in chain-dotted lines the outline of the actual fixing. The requirement that the quantity of heat passing through the corresponding boundary surfaces of the actual root fixing and the plane model should be the same is represented by Eq (3) which is used to define the heat-transfer coefficient at the model surfaces. The conditions at the boundary surface between the root and the rotor are not given. To establish them and to completely determine the temperature field both in the root and in the rotor, it

Electrical Modelling of Temperature Distribution in Turbine Motors

is first necessary to determine the equivalent parameters of the root fixing which governs heat flow from the blade root to the rotor. These equivalent parameters are the nominal heat-transfer coefficient and the nominal temperature of the medium that govern the heat flow from the blade root to the rotor through the section considered. The method of determining these equivalent parameters is then described. The heat flow to the rotor through the surface considered is given by Eq (4), from which Eq (6) is easily derived, and this is used to calculate the equivalent parameters. From these parameters it is possible to determine the boundary conditions on the electrical model of the rotor near the blade root fixings and so determine the temperature field of the whole rotor. The formulae used in the procedure are derived. Heat exchange through gaps left between the blade root and the rotor is then considered. Formulae (11) are given for heat removed by the air from the blade roots and hence the heat flow formulae (13) to (15) are derived. The application of the results to modelling is briefly explained.

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Electrical Modelling of Temperature Distribution in Turbine Motors

Models comprising three or four layers give sufficiently accurate results with electrical integrator type EGDA-6/53. The method is applicable to all types of rotor.

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There are 6 figures and 3 Soviet references.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Power Institute)

SAMOYLOVICH, Georgiy Semenovich; KOSTYUK, A.G., red.; BORUNOV, N.I., tekhn.red.

[Present-day steam turbines] Sovremennye parovye turbiny. Moskva, Gos.energ.izd-vo, 1960. 127 p. (Biblioteka teplotekhnika, no.7). (MIRA 13:6)

(Steam turbines)

AM4007947

BOOK EXPLOITATION

S/

Kostyuk, Askol'd Glebovich (Candidate of Technical Sciences, Docent)

Vibrations in turbomachines (Kolebaniya v turbomashinakh) Moscow, MEI, 1961. 213 p. illus., biblio. Errata slip inserted. 700 copies printed. Sponsoring Agency: Ministerstvo Vy*sshego i Srednego Spetsial'nogo Obrazovaniya RSFSR. Moskovskiy ordena Lenina energeticheskiy institut.

TOPIC TAGS: turbine, compressor, turbine vibration, compressor vibration, rotor vibration, plate vibration

PURPOSE AND COVERAGE: This is a textbook used in the course on turbomachinery at the Moskovskiy energeticheskiy institut (Moscow Power Engineering Institute). Special attention is given to vibration calculation for rotor blades, rotors, and disks and the application of the basic theory of turbine vibration.

TABLE OF CONTENTS [Abridged]:

Card 1/2

KHCHEYAN, Kh. Ye.; PAVLICHEV, A.F.; KOSTYUK, A.G.

Production of phthalic acids from the mixture of xylenes. Khim.prom. no.5:327-335 My '61. (MIRA 14:6)
(Phthalic acid) (Xylene)

KOSTYUK, A.G., kand.tekhn.nauk; SHUVALOV, G.I.

Use of gas-turbine systems in large power plants. Teploenergetika 8 no.5:3-6 My '61. (MIRA 14:8)
(Gas turbines)

15.9201 1372, 1436, 1474

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S/190/61/003/011/013/016
B110/B147

AUTHORS: Ushakov, V. D., Mezhirova, L. P., Galata, L. A., Kostyuk, A. G., Khusnutdinova, Z. S., Medvedev, S. S., Abkin, A. D., Khomikovskiy, P. M.

TITLE: Polymerization of styrene and butadiene with styrene in emulsions under the action of initiating redox systems. I. Effect of the nature of peroxide compounds on the rate of polymerization

PERIODICAL: Vysokomolekulyarnyye soyedineniya, v. 3, no. 11, 1961, 1716-1722

TEXT: Aim of the present work was the determination of the most active initiating redox systems for the polymerization of butadiene with styrene in emulsions, and especially of the effect of the nature of peroxides on the rate of polymerization. Nekal with 20 % of Na_2SO_4 and NaCl and mersolate (mixture of Na salts of sulfonic acids of the aliphatic series: $C_{15}H_{31}SO_3Na$) with < 5 % of NaCl served as emulsifiers. Peroxides were used

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Polymerization of styrene and ..

as oxidants (Table). Potassium ferrocyanide and ferrous pyrophosphate complex (IV) served as reducing agents. The rate of polymerization was determined either dilatometrically or from the yield of polymer (in ampuls). Polymerization took place at 5°C with an excess of butadiene, styrene with peroxides dissolved in it (10 % solution), and the calculated amount of emulsifier solution. A suspension of the ferrous pyrophosphate complex was added at a certain temperature by means of medical syringes. Substances used: (1) mersolate (3 % by weight added to water, ratio monomer : emulsifier 1 : 1); (2) potassium ferrocyanide. The temperature was varied between 0 and 40°C. Seven peroxides were investigated in amounts equivalent to 0.05 and 0.1 % by weight of isopropyl benzene hydroperoxide. $K_4Fe(CN)_6$ was used in concentrations equimolecular to hydroperoxide. p-tert butyl isopropyl benzene hydroperoxide (I) had the optimum rate of polymerization; that of ethyl isopropyl benzene peroxide, isopropyl benzene- (II), and methyl benzene hydroperoxide was lower, that of dibenzyl hydroperoxide still lower, and that of benzoyl peroxide the lowest. Polymerization with H_2O_2 proceeds fast at the beginning, then it decreases strongly, since H_2O_2 and the reducing agent are readily soluble in water. With 0.2-0.5 % by weight

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Polymerization of styrene and...

of II, only the initial rate increases. The total yield is lower than with 0.1 % by weight of II. Between 0.75 and 1 % by weight of II, initial rates and total yield are much lower. With 0.02-0.2 % by weight of I, initial rates increase. Since the total rate decreases at 0.2 % by weight, the dependence of the reaction rate on the hydroperoxide concentration is probably linked with the inhibiting effect of the decomposition products of hydroperoxide. With 0.1 % by weight of I and an equimolecular amount of $K_4Fe(CN)_6$, both total yield and initial rate increased with increasing temperature. The activation energies were determined according to the Arrhenius equation and found to be: $E = 8.6$ kcal/mole for II and $E = 5.7$ kcal/mole for I. Reduction of E by 3 kcal/mole at $\sim 0^oC$ corresponds to a 200-fold increase of the reaction rate. Since the rate is twice as high at 0^oC, the pre-exponential factor in the Arrhenius equation increases by 10^2 times with decreasing activation energy of I. For the copolymerization of butadiene with styrene (ratio 70 : 30) at 5^oC, the following was used: Nekal (2.8 and 1.4 % by weight added to water). 0.44 % by weight of ferropyrophosphate (related to iron sulfate) of the monomer. The ratio organic phase : aqueous phase was 1 : 4 (by weight). In the case of 0.34 %

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by weight of hydroperoxide of II (equimolar ratio to the monomer) optimum rate was achieved with IV. The highest yield was achieved with aryl-alkyl hydroperoxides (I and 1,1-diphenyl ethane hydroperoxide (III)) (Table). With an emulsifier concentration of 2.8 %, maximum conversion (70-75 %) was achieved after 2 hr with 0.2 % by weight of I and with 0.3 % by weight of III. With 0.34 % by weight of II, optimum conversion (~30 %) was achieved after 2 hr. Polymerization of I and IV with 1.4 or 2.8 % by weight of emulsifier was constant up to 30 % conversion, then the rate dropped. With 1.4 % by weight, the initial rate was lower and the decrease more distinct. With an addition of 0.1 % by weight of hydroperoxide + 0.26 % by weight of IV (after 1 hr new addition of 0.1 % by weight of hydroperoxide and 0.18 % by weight of IV), constant polymerization took place up to 60 % conversion. Thus, the consumption of the initiating system causes a decrease in rate. The efficiency of redox systems and initiators depends on the reactivity of the radical as well as on the solubility of the peroxide compounds in the aqueous phase and in the monomers. The lower the solubility in water, the lower the loss and the stronger the initiating action. I + IV cause a higher rate of reaction than II + IV due to lower activation energy and lower solubility in water. For II + IV, the redox reaction occurs at the

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Polymerization of styrene and...

phase boundary, for I + IV also in the aqueous phase The existence of a maximum of the rate of polymerization for I and butyl isopropyl hydroperoxide is caused by polymerization inhibition due to the decomposition products of the hydroperoxides. The authors thank A. G Pod"yapol ska for help with experiments and T. I. Yurzhenko (L'vovskiy industrial'nyy institut (L'vov Industrial Institute)) for supplying some hydroperoxides. There are 5 figures, 1 table, and 7 references: 4 Soviet and 3 non-Soviet. The two references to English-language publications read as follows: F. A Bovey, I. M. Kolthoff, Emulsion Polymerization, New York, 1955; C. F. Fryling, Industr. and Engng. Chem., 41, 986, 1949

ASSOCIATION Fiziko-khimicheskiy institut im. L Ya Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED December 28, 1960

Card 2/2

KOSTYUK, A.G. (Moskva)

Temperature field and thermal stresses in cooled disks of gas turbines under nonstationary thermal conditions. Izv.AN SSSR.-Otd.tekh.nauk.Mekh. i mashinostr. no.4:91-99 Jl-Ag '62.
(MIRA 15:8)

(Gas turbine disks) (Thermal stresses)

S/096/63/000/003/006/010
E194/E455

AUTHORS: Markin, V.F., Candidate of Technical Sciences, Gutkin, I.A., Engineer, Kostyuk, A.G., Candidate of Technical Sciences, Shifrin, Ye.L., Engineer

TITLE: The influence of transient heat-exchange on the process of regulating gas-turbine sets

PERIODICAL: Teploenergetika, no.3, 1963, 38-42

TEXT: In governing a gas turbine it is not the amount of gas flow which is regulated (as is the case in a steam turbine) but the amount of heat applied to the flow. Under steady-state conditions a steady temperature distribution is achieved between the various parts of the gas duct and the gas flowing through it. However, under transient conditions, the gas duct may either give up heat to the gas or extract heat from it, thus temporarily modifying the influence of the regulator. This effect can be of considerable practical significance. The differential equation for a gas-turbine regenerator is derived in the form

$$\frac{d\theta}{dz} = \frac{\mu}{\tau_\mu} + \frac{\theta}{\tau_\theta} + \frac{\nu}{\tau_\nu} + \frac{\rho}{\tau_\rho} \quad (8)$$

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where $\theta = \Delta T_e/T_{e\,o}$; $\mu = \Delta B/B_o$; $\nu = \Delta G/G_o$; $\rho = \Delta\varepsilon/\varepsilon_o$; T_e - air temperature beyond regenerator, °K; B - rate of fuel consumption; G - rate of air consumption, ε - compression ratio. This equation was used to calculate the effect when a turbine picks up load and it is shown that because of transient cooling in the regenerator the temporary loss of output is greater than it otherwise would be. The problem cannot be overcome by increasing the regulator speed but a solution may be achieved by temporary over-regulation. The device used by the "Ekonomayzer" Works to achieve such temporary over-regulation of a gas turbine type ГТУ-6 (GTU-6) is then described. In basic principle there is only one fuel-control valve, which over-travels in the first stage of the transient process and gradually returns to the correct setting. Two servo-motors are used in the regulator. Comparative test results on a gas turbine type GTU-6 with the normal regulator and with this special one are quoted for cases of picking up and throwing off 100% load. There is a substantial improvement in performance with the new regulator. The use of temporary over-regulation avoids the need to alter the

static characteristics of the regulation system; perfection has not yet been achieved but further improvement is possible. It should be noted that a regenerator does not always distort the transient process, but only in such cases when at different loads the temperature gradient between the regenerator wall and gas changes markedly. The greatest change occurs in gas turbines in which a compressor of flat characteristic runs at approximately constant speed. The main criterion in assessing the probable influence of the regenerator on the transient process is the gas temperature beyond the turbine. The more this changes on change of load the greater the influence of the regenerator on the transient process. There are 5 figures.

ASSOCIATION: Moskovskiy energeticheskiy institut - zavod "Ekonomayzer" (Moscow Power Engineering Institute - "Ekonomayzer" Works)

KOSTYUK, A.G.

Some problems in music appreciation. Vop.psikhol. 9 no.2: 45-58 Mr-Ap '63. (MIRA 16:4)

1. Institut iskusstvovedeniya AN UkrSSR, Kiyev.
(Music--Analysis, Appreciation)

L 11233-63 EWP(r)/EWT(m)/BDS--AFFTC--EM

ACCESSION NR: AP3001475 S/0114/63/000/006/0020/0023 52

AUTHOR: Kostyuk, A. G. (Candidate of technical sciences, Docent)

TITLE: Transient temperature field and stresses in cooled disks of gas turbines

SOURCE: Energomashinostroyeniye, no. 6, 1963, 20-23

TOPIC TAGS: gas turbine, gas-turbine temperature field, gas-turbine stresses

ABSTRACT: Specific properties are considered of temperature field that greatly facilitate determining the temperatures and temperature stresses in the disk at the moment of maximum hub-to-tip temperature difference. The disk temperature field is analyzed mathematically for both the warming-up period and the moment of turning-on the cooling air. Formulas are developed for calculating temperature stresses in the disk. An editorial note presents the article "for purposes of discussion". Orig. art. has: 5 figures and 12 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQD: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 000

Card 1/1 ch/wm

MARKIN, V. F., kand. tekhn. nauk; GUTKIN, I. A., inzh.; KOSTYUK, A. G., kand. tekhn. nauk; SHIFRIN, Ye. L., inzh.

Effect of unsettled heat exchange on the regulation process of gas turbine systems. Teploenergetika 10 no.3:38-42 Mr '63. (MIRA 16:4)

1. Moskovskiy energeticheskiy institut i zavod "Ekonomayzer".

(Gas turbines)

KOSTYUK, Askol'd Glebovich, kand. tekhn. nauk, dots.; SAMOYLOVICH, G.S., kand. tekhn. nauk, dots., red.

[Vibrations in turbomachines] Kolebaniia v turbomashinakh. Moskva, Mosk. energ. in-t, 1961. 213 p. (MIRA 16:6)
(Turbomachines--Vibration)

KOSTYUK, A.G., kand.tekhn.nauk, dotsent

Varying temperature field and stresses in cooled gas-turbine disks. Energomashinostroenie 9 no.6:20-23 Je '63. (MIRA 16:9)

KOSTYUK, A.G.

Determination of the temperature field of a radial gas turbine by means of an electric modeling technique using the EGDA-9/60 integrator. Trudy MEI no.47:217-224 '63. (MIRA 17:1)

L 22137-65 ENT(m)/ENP(b)/T/ENA(d)/ENP(w)/ENP(t) BSD/AFWL/SSD/ASD(f)-3/APETR/
APGC(a) EM/JD

ACCESSION NR: AP5002202 B/0096/65/000/001/0048/0053

AUTHORS: Kostyuk, A. G. (Candidate of technical sciences); Trukhniy, A. D. (Engineer); Ostrov, L. B. (Candidate of technical sciences)

TITLE: On the strength of components of heat power installation in unsteady state regimes

SOURCE: Teploenergetika, no. 1, 1965, 48-53

TOPIC TAGS: endurance limit, stress relation, thermal stress, plastic deformation, fatigue, creep characteristic, EI 612 steel, LJ 37 high frequency generator, EPP 09 potentiometer

ABSTRACT: An experimental investigation was made of model disks under repeated cycles of heating and cooling in order to determine the endurance of components in heat power installations. The 120 mm diameter by 10 mm thick disk was made from EI-612 steel. The endurance test to thermal cycles was carried out in a gas and steam turbine laboratory (MEI). Heating was accomplished by a circular inductor with 700C maximum temperature, and cooling was obtained by blowing air around the disk. Temperature drops upon cooling ranged from 43 to 2330 for the nine disks

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used in the test, and the endurance limit N was determined from the number of cycles required before a visible crack developed under the microscope. Tabulated results show N to vary between 31 and 119. The peripheral stress-strain relationship during the heating-cooling cycle of the disk is represented by the equation

$$\frac{\sigma_r}{E} = \frac{\sigma}{E} + 0.0015\left|\frac{\sigma}{\sigma_s}\right|^n \operatorname{sign}\sigma + \frac{3}{4}\int_0^{\sigma} K \exp\frac{\sigma_1}{B} \operatorname{sign}\sigma_1 \left(\frac{\sigma_r}{E} = \varepsilon - \alpha t\right),$$

Graphical plots are obtained for σ versus ε under 0- and 19-minute time lag conditions. Throughout the heating-cooling cycle two processes of creep with different magnitudes were observed, as well as two areas of plastic deformation. The results are analyzed in some detail, and the following three phenomenological hypotheses for failure are given: 1) under pure thermal fatigue (no creep) only short-duration plastic deformations exist; 2) the material endurance under thermal fatigue with creep is determined from cumulative irreversible deformations; and 3) the degree of damage upon thermal fatigue and creep is a single-valued function of the degree of damage from short-duration plastic deformation and degree of

L 22157-65
ACCESSION NR: AP5002202

damage from creep. This last hypothesis leads to the expression

$$N = 1 - 0{,}81\left(N - \frac{N}{N_c}\right).$$

Orig. art. has: 8 formulas, 7 figures, and 2 tables.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Institute of Heat Power Engineering)

SUBMITTED: 00 ENCL: 00 SUB CODE: IE, PR, MM

NO REF SOV: 003 OTHER: 002

Card 3/3

KOSTYUK, A.G. (Moskva)

Statistical model of a microheterogeneous medium. Izv. AN SSSR. Mekh. no.1:64-67 Ja-F '65. (MIRA 18:5)

L 22290-66 EWA(h)/EWP(k)/EWT(d)/EWT(m)/ETC(m)-6/EWP(w)/EWP(v) IJP(c) EM/WW

ACC NR: AP6007308 UR/0096/66/000/003/0053/0057 65 B

AUTHOR: Karpin, Ye.B. (Candidate of technical sciences); Kostyuk, A.G. (Candidate of technical sciences); Zuyeva, G.K. (Engineer); Piruyeva, L.V. (Engineer); Sokolov, V.S. (Engineer

ORG: MEI-KTZ

TITLE: Calculation of unsteady state temperature fields in plates and shells using a computer

SOURCE: Teploenergetika, no.3, 1966, 53-57

TOPIC TAGS: temperature distribution, computer program, computer calculation, temperature, shell structure, aerospace structure

ABSTRACT: The article proposes approximate methods for calculating unsteady state temperature fields which greatly simplify the calculation and which give results which are satisfactory in accuracy for practical purposes. The mathematical development of the method considers a shell of arbitrary shape and variable thickness, with respect to a curvilinear orthogonal coordinate system. The remainder of the article consists of the working out of a detailed computer program for the given problem. The method and the program were used to investigate the effect of different factors on the temperature field and the stresses in turbine vanes and disks. Calculated results are shown in a figure. The solution of

Card 1/2 UDC: 536.12.681.142.35.001.24

L 22290-66

ACC NR: AP6007308 O

the above problem (for heating for a period of 300 seconds) required about 0.75 hours of machine time. In addition, about 0.75 hours are spent in preparing the perforated tape from the starting data. Solution of an analogous problem by hand methods would take about 200 hours. Orig. art. has: 22 formulas and 6 figures.

SUB CODE: 20,09/SUBM DATE: none/ ORIG REF: 007/ OTH REF: 001

Card 2/2 nst

AGAMIROV, V.L., kand. tekhn. nauk; AMEL'YANCHIK, A.V., inzh.; ANDREYEVA, L.Ye., kand. tekhn. nauk; BIDERMAN, V.L., doktor tekhn. nauk; BOYARSHINOV, S.V., kand. tekhn. nauk; VOL'MIR, A.S., prof., doktor tekhn. nauk; DIMENTBERG, F.M., doktor tekhn. nauk; KOSTYUK, A.G., kand. tekhn. nauk; MAKUSHIN, V.M., kand. tekhn. nauk; MASLOV, G.S., kand. tekhn. nauk; MALININ, N.N., prof., doktor tekhn. nauk; PONOMAREV, S.D., prof. doktor tekhn. nauk; PRIGOROVSKIY, N.I., prof., doktor tekhn. nauk; SERENSEN, S.V., akademik; STEPANOVA, V.S., inzh.; STRELYAYEV, V.S., inzh.; TRAPEZIN, I.I., prof., doktor tekhn. nauk; UMANSKIY, A.A., prof., doktor tekhn. nauk; FEODOS'YEV, V.I., prof., doktor tekhn. nauk; SHATALOV, K.T., doktor tekhn.nauk; YUMATOV, V.P., kand. tekhn. nauk; BLAGOSKLONOVA, N.Yu., red. izd-va; YEVSTRAT'YEV, A.I., red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Manual for a mechanical engineer in six volumes] Spravochnik mashinistroitelia v shesti tomakh. Red. sovet N.S.Acherkan i dr. Izd.3., ispr. i dop. Moskva, Mashgiz. Vol.3. 1962. 651 p. (MIRA 15:4)

1. Akademiya nauk USSR (for Serenson).
(Machinery--Design)

KOSTYUK, A.I., Cand Phys-Math Sci — (diss) "Sect in problem of the theory of geometric constructions." Kiev, 195?. ? pp (Kiev Order of Lenin Polytech Inst), ??? copies. Bibliography at end of text (?? titles) (??-43-?3, 11?)

L 11233-67

ACC NR: AP6029546 (A) SOURCE CODE: UR/0256/66/000/006/0032/0034

AUTHOR: Kotsyubinskiy, V. L. (Lieutenant colonel; Pilot first class); Logvinenko, G. L. (Lieutenant colonel; Medical corps); Kostyuk, A. L. (Captain; Medical corps)

ORG: None

TITLE: Psychological influence of training devices on the formation of flying habits and ability

SOURCE: Vestnik protivovozdushnoy oborony, no. 6, 1966, 32-34

TOPIC TAGS: flying training, training equipment, aircraft simulator, FLIGHT PSYCHOLOGY

ABSTRACT: The authors consider the psychological aspect of the flying training affecting the trainee's reason, sense perception and motor reactions. The development of flying ability and habits of thought under various flying conditions is generally reviewed, and personal qualifications of trainees for flying and piloting are considered. The commanding officers and flying instructors must develop a psychological approach in dealing with pilots in order to become aware of their habits and mental reactions. In this connection, a successful teaching experience of some officers is highly praised. Sometimes, a behavior pattern rapidly acquired at the beginning of the training is distorted and worsened by the trainee's personal habits and manners. It also happens that a pilot who is well trained for a particular type of aircraft acquires habits which disqualify him for piloting other types of aircraft. The problem of retraining and the interference of old and

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I. 11233-67

ACC NR: AP6029340

new habits is discussed including also the loss of old habits after retraining. This loss can lead to accidents if the pilot is switched again to the old type of aircraft. Psychological factors and training standards must be taken into account by evaluating erroneous actions of pilots. A standard of proficiency must be maintained by applying various elaborated methods of training including the use of special training equipment and aircraft simulators. An efficient and systematic use of ground aircraft trainer is discussed from the standpoint of psychological reactions. It is recommended that the training exercises be conducted every two days at the beginning and then twice per week. The duration of one exercise must not exceed 50 minutes. In general, an accelerated and forced training process based mostly on emotional stimuli is less effective than a regular systematic method of training in an aircraft simulator well equipped with various control instruments and survival devices. It is estimated that two or three "flights" are needed per one retraining exercise, making up a total of about 40 hours per year. One hour and a half of training per month is sufficient for maintaining the required standard of proficiency.

SUB CODE: 01, 05, 15/ SUBM DATE: None

Card 2/2

KOSTYUK, A.M.

ZHURAVLEV, S.P.; TARAN, N.N.; MALAKHOV, G.M.; NEDIN, V.V.; KUDRYASHOV, K.V.; ZHUKOV, M.N.; KADYRBAYEV, R.A.; SHOSTAK, A.G.; RIMSKIY, V.S.; KOSTYUK, A.M.; ARSENT'YEV, A.I.; SHUTENKOV, T.S.; SERYAKOV, G.V.

"Mining ore deposits." M.I. Agoshkov. Reviewed by S.P. Zhuravlev and others. Gor.zhur. no.7:63-64 Jl '55. (MLRA 8:8)
(Mines and mineral resources) (Agoshkov, M.I.)

KOSTYUK, A.N. [Kostiuk, O.N.]

Effect of root mentors on grape seedlings [with summary in English]. Ukr. bot. zhur. 15 no.2:36-43 '58. (MIRA 11:6)

1.Ukrainskiy naukovo-doslidniy institut vinogradarstva im. Tairova.
(Grape breeding)

KOSTYUK, A. N. Cand Agr Sci -- "Agricultural engineering of directed raising of grape seedlings." Odessa, 1960 (Min of Agr UkSSR. Odessa Agr Inst). (KL, 1-61,201)

RODIGINA, A.M.; YEGOROV, I.F.; SEMENOVA, G.S.; KOSTYUK, A.N.

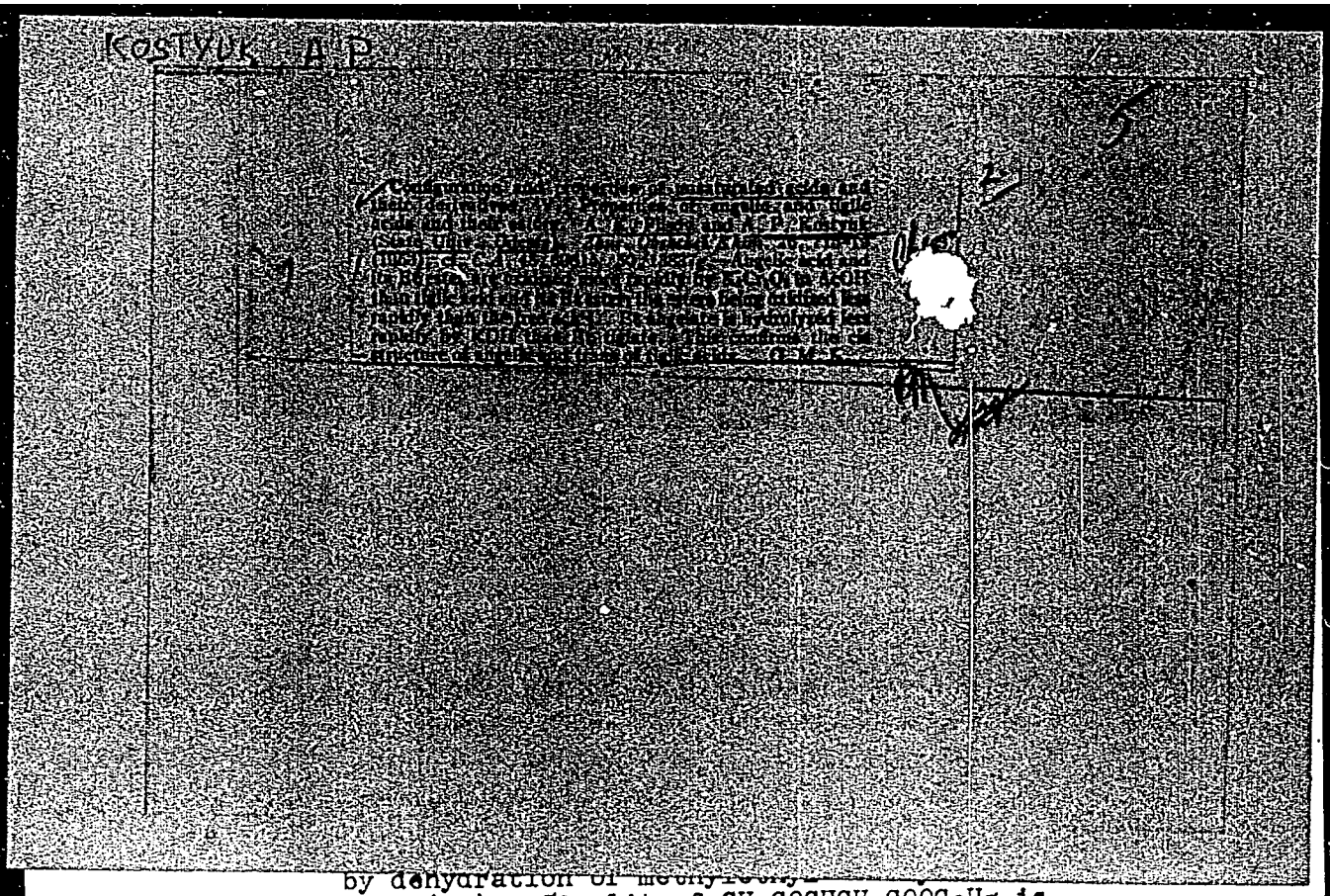
Congenital toxoplasmosis of the eye; a clinical and pathomorphological study. Vest.oft.74 no.1:45-52 '61. (MIRA 14:3)
(TOXOPLASMOSIS) (EYE--DISEASES AND DEFECTS)

KOSTYUK, A. P.

Dissertation: "Configuration and Properties of Angelic and Tiglinic Acids." Cand Chem Sci, Odessa State U, Odessa, 1954. Referativnyy Zhurnal--Khimiya, Moscow, No 13, Jul 54.

SO: SUM No. 356, 25 Jan 1955

Kostyuk, A. P.



by dehydration of methylketo- acid (IV). 50 mlit of $CH_3COCHCH_3COOC_2H_5$ is dissolved in a mixture of 150 mlit of water with alcohol and acidifying with 10% solution

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Abs Jour : Ref Zhur - Khimiya, No. 8, 1957, 26708.

of H_2SO_4, 150 g of 2% Na amalgam is added in the course of 5 to 6 days, neutralized, evaporated, and the Na salt is extracted with absolute alcohol. II is dehydrated by heating first to 100 to 110° and after that to 145 to 180°, the boiling point of I is 95 to 96°/ 12 mm, the melting point is 64°, n D = 1.4329. Methylethylacetic acid is treated with bromine 3 hours in a sealed tube raising the temperature to 149- 153°; it explodes at 130°, if the temperature was raised rapidly. The produced methylethyl-α-bromoacetic acid (VI) is transformed into IV by heating with water and $CaCO_3$ or water and Na_2CO_3; mainly I is forming at the dehydration of IV obtained from VI with $CaCO_3$, and IV from VI and Na_2CO_3 basically

KOSTYUK, A.P.; P'YANKOV, V.A.

Equilibrium constants of the interaction of potassium bromomercurate and potassium iodomercurate with alkali. Zhur.neorg.khim. 2 no.7:1535-1537 Jl '57. (MIRA 10:11)

1. Odesskiy elektrotekhnicheskiy institut svyazi.
(Chemical equilibrium) (Potassium compounds) (Alkalies)

AUTHORS: P'yankov, V.A., Nikitina, Ye.S., Kostyuk, A.P. SOV/78-3-7-24/44

TITLE: On the Interaction Between Zinc and Oxygen in Solutions of Alkaline Halides (O vzaimodeystvii tsinka s kislorodom v rastvore galoganidov shchelochnykh metallov)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol 3, Nr 7, pp 1608-1610 (USSR)

ABSTRACT: The velocity of the reaction of zinc with oxygen in solutions of chlorides, bromides, and iodides of potassium at various temperatures and various concentrations of the reacting substances was investigated.
The reaction velocity of the interaction between zinc and oxygen increases from iodide to chloride. The reaction develops probably according to the following scheme:
$2\,Zn + O_2 + 8\,Cl^- + 2\,H_2O = 2\,ZnCl_4^{2-} + 4\,OH^-$. The results indicate that in the first stage of this reaction unstable zinc-halide complex salts are formed from the solutions of which the surplus zinc-portion is precipitated while zinc hydroxide or basic zinc halide is formed. There is a linear connection between the concentration of oxygen and the quantity of zinc. The

Card 1/2

On the Interaction Between Zinc and Oxygen in Solutions of Alkaline Halides SOV/78-3-7-21/44

concentration of the halides exercises comparatively little influence upon reaction velocity. With an increase of halide concentration to 16 times its amount, reaction velocity increases by 3 to 4 times its amount. Also the concentration of zinc in the solution exercises only little influence on the velocity of reaction. There are 3 figures, 3 tables and 4 references, 3 of which are Soviet.

SUBMITTED: June 28, 1957

1. Zinc--Chemical reactions 2. Oxygen--Chemical reactions
3. Alkali halide solutions--Chemical properties

Card 2/2

S/073/60/026/001/021/021
B004/B054

AUTHORS: P'yankov, V. A. and Kostyuk, A. P.

TITLE: Formation of an Oxide Film on Copper Surfaces

PERIODICAL: Ukrainskiy khimicheskiy zhurnal, 1960, Vol. 26, No. 1, pp. 138-141

TEXT: The authors made a chemical determination of the thickness of oxide films on copper surfaces. They treated the surface of copper laminae with dilute sulfuric acid free from oxygen. The latter dissolves Cu_2O but does not react with metallic copper at room temperature. Copper laminae were exposed to the action of air at various temperatures, and then treated with dilute H_2SO_4. The amount of dissolved Cu_2O was determined by titration of the dissolved Cu by means of dithizon. Fig. 2 shows the thickness of the oxide film as a function of the duration of action of different temperatures. Thickness and formation rate of the film increases with rising temperature. The authors discuss the deviating results found by A. G. Samartsev (Ref. 7). Whereas his data for 50° and

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75°C agree quite well with those of the authors. Samartsev found at 100°C a steady increase in film thickness beyond 200 A. This contradicts the data of other investigators concerning the good protective action of the oxide film. Experiments at 20°C with O_2 dried by means of P_2O_5, and with O_2 saturated with water vapor, yielded a film thickness of 24 A in the case of dry O_2, one of 56 A in the case of moist O_2. D. I. Krasil'shchikov is mentioned. There are 4 figures and 7 references: 4 Soviet, 1 US, and 2 British.

ASSOCIATION: Odesskiy elektrotekhnicheskiy institut svyazi (Odessa Electrotechnical Institute of Communications)

SUBMITTED: January 8, 1959

Legend to Fig. 2: a) hours, b) film thickness

YEVDOKIMOV, D. Ya.; KOSTYUK, A. P.

Adsorption of germanium from solutions as dependent on the quantity of adsorbents. Zhur. fiz. khim. 36 no.12:2741-2742 D '62. (MIRA 16:1)

1. Odesskiy elektrotekhnicheskiy institut svyazi.

(Germanium) (Adsorption)

KOSTYUK, A.P.; YEVDOKIMOV, D.Ya.

Isotherm of adsorption of germanium by activated charcoal from solutions. Izv.vys.ucheb.zav.;khim.i khim.tekh. 6 no.1:72-74 '63. (MIRA 16:6)

1. Odesskiy elektrotekhnicheskiy institut svyazi, kafedra obshchey khimii.
(Germanium) (Adsorption) (Carbon, Activated)

KOSTYUK, A.P., kandidat tekhnicheskikh nauk, dotsent.

Applying the general dynamics equation to the problem of determining the tangential force on the rims of locomotive wheels from the forces of inertia of a moving steam distribution mechanism. Trudy KHIIT no.23:89-105 '53. (MLRA 10:8)
(Car wheels) (Mechanics, Analytic)

KOSTYUK A.P.

LISOVENKO, S.I.; ZOLOTUKHIN, I.M.; KOSTYUK, A.P.; LISOVENKO, E.V.; FEL'DMAN, M.F.; KUZNETSOV, T.F.; PIVOVAROV, L.A., inzhener, retsenzent; SHAROYKO, P.M., inzhener, retsenzent; TURIK, N.A., inzhener, retsenzent; KIRILLOV, Yu.G., inzhener, retsenzent; SHVEDOV, N.A., inzhener, retsenzent; RUDENSKIY, Ya., tekhredaktor.

[Locomotives]Parovozy. Pt. 2. [Theory, design, and calculations for machinery, underframe, and auxiliary parts. Dynamics, traction calculations, and brief information on operation] Teoriia, konstruktsiia i raschet mashiny, ekipazha i vspomogatel'nykh ustroist, dinamika, tiagovye raschety i kratkie svedeniia po eksploatatsii. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry. 1954. 475 p. [Microfilm] (MLRA 7:11)

(Locomotives)

SOV/124-57-4-3946

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 14 (USSR)

AUTHOR: Kostyuk, A. P.

TITLE: An Analytical Method for the Calculation of Flywheel Masses (Analiticheskiy metod rascheta makhovykh mass)

PERIODICAL: Tr. Khar'kovsk. in-ta inzh. zh.-d. transp., 1956, Nr 26, pp 143-155

ABSTRACT: The author examines the question of the analytical determination of a flywheel mass for the purpose of reducing the irregularity of the rotation of the driving link of a mechanism under the following premises: The reduced mass of the mechanism m_n is variable, the reduced force is a function of the position of the main link, and the links of the mechanism are absolutely rigid. The tabular functions of the reduced mass and of the reduced force are expressed by Fourier series. As a result of the integration of the differential equation of motion of the mechanism the law of motion of the main link $\omega = F(\varphi, n_o)$ is found, where ω is the angular velocity of the main link and m_o is the constant part of the reduced mass of the mechanism, including the flywheel mass. Assuming, for $\phi = 0$, some value ω_o, for example, its

Card 1/2

An Analytical Method for the Calculation of Flywheel Masses

mean value, and selecting a preliminary value m_{01}, it is then possible to calculate the function $\omega = F(\phi, m_{01})$ and determine the coefficient of the irregularity of the rotation δ_1. The selected value m_{01} is then refined in such a manner as to achieve the prescribed value of the coefficient of irregularity, for which purpose the approximate relationship $m_{01}\,\delta_{01} \simeq m_{02}\,\delta_{02}$ is used. In comparison to the well-known methods of the calculation of a flywheel mass the method described in the paper under review is characterized by a great amount of computations and, yet, does not possess any greater accuracy.

F. L. Litvin

Kostyuk, A.P.

124-1957-2-1541

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 14 (USSR)

AUTHOR: Kostyuk, A.P.

TITLE: The Stability of a Locomotive Relative to Derailment While Transiting Through Curves (Ustoychivost' lokomotiva v otnoshenii skhoda s rel'sov pri dvizhenii v krivykh)

PERIODICAL: Tr. Khar'kovsk. in-ta inzh. zh.-d. transp., 1956, Nr 26, pp 156-189

ABSTRACT: Bibliographic entry

1. Locomotives--Stability

Card 1/1

BEZVESEL'NYY, Yefim Semenovich, dotsent, kand.tekhn.nauk; KOSTYUK, A.P., dotsent, kand.tekhn.nauk, otv.red.; SKREDA, V.S., prof., doktor tekhn.nauk, retsenzent; LITVIN, G.I., dotsent, kand. tekhn.nauk, retsenzent; PASHCHINSKAYA, G.N., red.; ZADOROZHNYY, V.S., tekhn.red.

[Collected problems and exercises in the theory of mechanisms and machines] Sbornik zadach i zadanii po teorii mekhanizmov i mashin. Khar'kov, Izd-vo Khar'kovskogo gos.univ., 1958. 361 p. (MIRA 12:9)
(Mechanical engineering--Study and teaching)

KOSTYUK, A.P., kand. tekhn. nauk, dotsent

Designing adhesion weight augmenters for the 1-5-1-type steam locomotive. Trudy KHIIT no.29:19-35 '58. (MIRA 11:8)
(Locomotives)

SEREDA, Vasiliy Trofimovich, prof.; KOSTYUK, Anatoliy Parfenovich, dotsent; VISHNEVETSKIY, Yefim Abramovich, assistent; SHEBANOV, Igor' Georgiyevich, assistent; BEZVESEL'NYY, Ye.S., dotsent, otv.red.; KOSTYUK, D.I., dotsent, kand.tekhn.nauk, retsenzent; KURILOVA, T.M., red.; NIKULINA, N.I., tekhn.red.

[Manual for laboratory work in the theory of mechanisms and machinery] Rukovodstvo k laboratornym rabotam po teorii mekhanizmov i mashin. Khar'kov, Izd-vo Khar'kovskogo gos.univ., 1960. 142 p. (MIRA 13:12)
(Mechanical engineering--Laboratories)

BEZVESEL'NYY, Yefim Semenovich; KOSTYUK, A.P., dots., kand. tekhn. nauk, retsenzent; ZALESSKIY, M.Yu., dots., kand. tekhn. nauk, retsenzent; LITVIN, G.I., dotsent, kand. tekhn. nauk, otv.red.; KURILOVA, T.M., red.; TROFIMENKO, A.S., tekhn. red.

[Examples of course projects in the theory of mechanisms and machinery] Kursovoe proektirovanie po teorii mekhanizmov i mashin v primerakh. Khar'kov, Izd-vo Khar'kovskogo gos. univ. im. A.M.Gor'kogo, 1960. 522 p. (MIRA 14:9)

(Mechanical engineering—Study and teaching)

KOSTYUK, A. P., dotsent, kand. tekhn. nauk

Plotting the traction characteristics of diesel locomotives with double-flow hydromechanical transmission. Trudy KHIIT no.51: 65-76 '61. (MIRA 15:10)

(Diesel locomotives—Hydraulic drive)

KOSTYUK, A.P., dotsent, kand.tekhn.nauk

Wear of locomotive wheel bands due to the disparity of wheel diameters. Trudy KHIIT no.50:99-111 '61. (MIRA 15:12)
(Car wheels)

SEREDA, V.T., prof.; Prinimali uchastiye: KOSTYUK, A.P., dotsent; NETYUKHAYLO, S.P., inzh.

Studying the double-flow hydromechanical transmission of a 3000 HP diesel locomotive. Trudy KHIIT no.46:43-60 '61. (MIRA 15:12)

1. Khar'kovskiy institut inzhenerov zheleznodorozhnogo transporta.

(Diesel locomotives—Hydraulic drive)

SEREDA, V. T., doktor tekhn. nauk, prof.; KOSTYUK, A. P., kand. tekhn. nauk, dotsent; NETYUKHAYLO, S. P., inzh.

Comparison study of the hydromechanical transmissions of the diesel locomotive. Trudy KHIIT no.51:5-64 '61. (MIRA 15:10)

(Diesel locomotives—Hydraulic drive)

YEVDOKIMOV, D.Ya.; KOSTYUK, A.P.

Adsorption of germanium compounds from solutions by activated carbon. Zhur. prikl. khim. 38 no.4:751-756 Ap '65. (MIRA 18:6)

1. Odesskiy elektrotekhnicheskiy institut svyazi.

S/076/62/036/012/009/014
B101/B180

AUTHORS: Yevdokimov, D. Ya., and Kostyuk, A. P.

TITLE: Study of the dependence of germanium adsorption from solutions on the amount of adsorbent

PERICDICAL: Zhurnal fizicheskoy khimii, v. 36, no. 12, 1962, 2741 - 2742

TEXT: Measurement was made, of x the total, and x/m the specific adsorption of GeO_2 from aqueous solutions by activated birch charcoal. The amount of adsorbent m was varied between 0.1 and 3 g. The solutions contained 3 mg Ge per liter and the x and x/m determination was made with a photoelectrocolorimeter by the phenyl fluorone method. The empirical equations $x = Km^{1/n}$ and $x/m = Km^{-1/\alpha}$, where $1/\alpha = 1 - 1/n$, are valid since log x and log x/m are linear functions of log m. The experimental data are best represented by $x = 6.3\ m^{0.17}$ and $x/m = 6.3m^{-0.83}$. There are 2 figures.

Card 1/2

L 06509-67 EWT(m)/EWP(j) RM

ACC NR: AP7000483 SOURCE CODE: UR/0079/66/036/006/1129/1133

POSTNIKOVA, G. B., KOSTYUK, A. S., LUTSENKO, I. F., Moscow State University im. Lomonosov (Moskovskiy gosudarstvennyy universitet)

21
B

"Beta-phosphinylated Vinyl Esters of Carboxylic Acids"

Moscow, Zhurnal Obshchey Khimii, Vol 36, No 6, 1966, pp 1129-1133

Abstract: A method was developed for synthesizing chlorides and esters of beta-acyloxyvinylphosphinic acids. Chlorides of beta-acyloxy-beta-chloroethylphosphinous acids were prepared by reduction of adducts of phosphorus pentachloride to vinyl esters of carboxylic acids with white phosphorus. Esterification of these chlorides with alcohol in the presence of a base yielded complete esters of beta-acyloxy-beta-chloroethylphosphinous acids. Derivatives of beta-acyloxyvinylphosphinous acids could not be obtained from the esters; however, dehydrochlorination of chlorides of beta-acetoxy-beta-chloroethylphosphinous acids proceeded readily to chlorides of beta-acyloxyvinylphosphinous acids, in 70-90% yields. Esterification of these chlorides with alcohol in the presence of pyridine yielded complete esters of beta-acyloxyvinylphosphinous acids. Orig. art. has: 2 figures and 1 table. [JPRS: 37,023]

TOPIC TAGS: vinyl compound, phosphorus chloride, ester

SUB CODE: 07 / SUBM DATE: 25Jan65 / ORIG REF: 003

Card 1/1 LS UDC: 547.341

C983 1197

L 25608-66 EWT(m)/EWP(j) RM

ACC NR: AP6016700 SOURCE CODE: UR/0079/65/035/012/2204/2207

AUTHOR: Postnikova, G. B.; Kostyuk, A. S.; Lutsenko, I. F.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

26
B

TITLE: Derivatives of functionally substituted phosphinous acids

SOURCE: Zhurnal obshchey khimii, v. 35, no. 12, 1965, 2204-2207

TOPIC TAGS: phosphorus chloride, ester, carboxylic ester, phosphinic acid, nonmetallic organic derivative, organic phosphorous compound

ABSTRACT: Results of the study of the reduction of adducts of phosphorus pentachloride with complex esters of enols, using the adducts of phosphorus pentachloride with the vinyl esters of propionic, butyric, and benzoic acids as well as with isopropenyl-benzoate are presented.
In the case of the vinyl esters of propionic and butyric acids, the acid chlorides of beta-propionyloxy-beta-chlor- and beta-butyroxy-beta-chlorethylphosphinous acids were obtained in high yields (70-80%).

$$RCOOCH{=}CH_2 + 2PCl_5 \xrightarrow{+3+6^\circ} \left[RCOO{-}\underset{Cl}{CH}{-}CH_2PCl_3\right]^+PCl_6^- \xrightarrow[3-6^\circ]{P(l_2)}$$

Card 1/2

UDC: 547.241

2

ACC NR: AP6016700

$$\longrightarrow \underset{\underset{Cl}{|}}{RCOO-CH-CH_2PCl_3} + PCl_3$$

(I)

In the case of vinyl and isopropenyl esters of benzoic acid the cleavage of hydrogen chloride occurs in the reaction while still cold and the acid chlorides of beta-benzoyloxyvinyl- and beta-benzoyloxpropenylphosphinous acids are correspondingly isolated:

$$C_6H_5COOC(R)=CH_2 + 2PCl_5 \longrightarrow \left[C_6H_5COO-\underset{\underset{R}{|}}{\overset{\overset{Cl}{|}}{C}}-CH_2PCl_3\right] {}^{+}PCl_6^{-} \xrightarrow{(Pl_2)}$$

$$\longrightarrow \underset{(A)}{\left[C_6H_5COO-\underset{\underset{R}{|}}{\overset{\overset{Cl}{|}}{C}}-CH_2PCl_2\right]} + PCl_3 \xrightarrow{-HCl} \underset{(II)}{C_6H_5COOC(R)=CHPCl_2}$$

Compounds type A, for derivatives of phosphorus pentachloride (acid chlorides of beta-benzoyloxy-beta-chlorethyl(propyl)phosphinic acids) are completely stable under the normal conditions and cleave off HCL only with long heating up to 100°. Constants and yields of all the prepared compounds are presented. [JPRS]

SUB CODE: 07 / SUBM DATE: 20Jan65 / ORIG REF: 002

Card 2/2 FV

POSTNIKOVA, G.B.; KOSTYUK, A.S.; LUTSENKO, I.F.

Derivatives of functionally substituted phosphinic acids.
Zhur.ob.khim. 35 no.12:2204-2207 D '65.
(MIRA 19:1)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
Submitted January 20, 1965.

KOSTYUK, B.A., inzh.

Checking of current transformers for short-circuited turns in the secondary windings. Elek. sta. 35 no.11:74-76 N '64.
(MIRA 18:1)

IPAT'YEVA, V.A.; KOSTYUK, B.V.

Physicochemical conditions for the production of high-strength gypsum at atmospheric pressure. Ukr.khim.zhur. 24 no.5:681-685 '58.
(MIRA 12:1)

1. Kiyevskiy zavod gipsovykh dosok i blokov.
(Gypsum)

KOSTYUK, D. I.

Kinematika konsol'nogo ubiraiushchegosia shassi. (Tekhnika vozdushnogo flota, 1941, v. 15, no. 3, p. 53-55)

Title tr.: Kinematics of the retractable undercarriage.

TL504.T4 1941

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

KOSTYUK, D.I., kandidat tekhnicheskikh nauk, dotsent.

Calculating the bending of teeth. Vest.mash. 33 no.5:16-18 My '53.
(MLRA 6:5)
(Gearing)

BEZVSEL'NYY, Yefim Semenovich, kandidat tekhnicheskikh nauk; KOSTYUK, D.I., redaktor; BUKHBINDER, L.M., tekhnicheskiy redaktor

[Atlas on the theory of mechanisms and machines] Atlas po teorii mekhanizmov i mashin. Khar'kov, Izd-vo Khar'kovskogo gos. universiteta im. A.M.Gor'kogo, 1954. 125 p. 116 illus. (MIRA 8:7)
(Machanical engineering)

KOSTYUK, D.I.

2468. Kostyuk, D. I., A new method of determining the transitional curve radii of a gear tooth profile (in Russian), *Trudi Kharkovsk. aviats. in-ta* no. 15, 125-132, 1954; *Ref. Zh. Mekh.* 1956, Rev. no. 1335.

The formation of the transition curve of a gear tooth by means of a rack, and the cutting of the teeth by milling, are analyzed. The Euler-Savary equation of the theory of reciprocally enveloping curves is applied by the author, in accordance with the dimensional relationship between the tool and the blank—i.e., assuming a module of unity—, to the development of the fundamental equation:

$$\rho = \frac{r}{\cos\varphi} + R - \frac{rz\cos\varphi}{z\cos^2\varphi + 2r}$$

where z = number of teeth in the wheel, r distance from the center of the tip transition curve of the cutter tooth to its medium line, R radius of the tip transition curve of the cutter tooth, ρ radius of curvature of the root curve. The angle φ determining the location of the radius of curvature with reference to the common normal to the centroids varies between 0° and 70°. The case of forming the teeth by milling is investigated similarly.

Curves are given of the change in curvature of the root transition of gear wheels depending on the number of teeth, for a given value of the curvature of the root transition, assumed to the optimum in determining the coefficient of (stress) concentration.

Courtesy of Referativnyi Zhurnal D. F. Blokh, USSR

Translation, courtesy [illegible] of Supply, England

Kostyuk, D.I.

AUTHOR: Kostyuk, D.I. 123 - 1 - 114.

TITLE: New Method for Rate Determination of Speed in Impact of Teeth in Spur Gears (Novyy metod opredeleniya skorosti udara zub'yev pryamozubykh koles).

PERIODICAL: Tr. Khar'kovsk. aviats. in-ta, 1955, vyp.16, 9-26. (USSR)

ABSTRACT: An analytical method for rate determination of speed in impact of absolutely rigid teeth in spur gears for the zero and adjusted meshings is suggested. Conditions are determined for pull (breaking away) of non-striking pair with the impact in the middle of teeth, and relation between the forces of impact in the middle and at the shoulder of teeth is established. The assertion is made that the proposed method of rate determination of speed in impact is more precise than the one presently in use. B.L.S.

Ref.Zh.,Mashinostroyeniye, Nr.1, 1957, Item 114.

Card 1/2

123 - 1 - 114.

ASSOCIATION: Aeronautical Institute in Khar'kov (Khar'kovsk. aviats. in-t).

PRESENTED BY:

SUBMITTED:

AVAILABLE:

Card 2/2

ALEKSANDROV, L.I.; ARTEMENKO, N.P.; KOSTYUK, D.I.; GERONIMUS, Ya.L., professor, otvetstvennyy redaktor; CHERNYSHENKO, Ya.T., tekhnicheskiy redaktor

[Cylindrical gearing; theory, calculation and design] TSilindricheskie zubchatye kolesa; teoriia, raschet i proektirovanie. Khar'kov, Izd-vo Khar'kovskogo ordena trudovogo krasnogo znameni gos. univ. im. A.M.Gor'kogo. 1956. 317 p. (MLRA 9:9)
(Gearing)

25 (1) SOV/145-58-7/8-11/24

AUTHORS: Kostyuk, D.I., Candidate of Technical Sciences, Docent and Tkachenko, V.A., Engineer

TITLE: Influence of Toothed Rack Initial Form According to the GOST 3058-54 on the Efficiency of Flanking

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Mashinostroyeniye, 1958, Nr 7-8, pp 95-108 (USSR)

ABSTRACT: A theoretical substantiation of flanking angle values is given in the work by M.S. Polotskiy, "Initial and Working Form of Toothed Rack". TsNIITMASh, Book 13. Theory and Estimation of Toothed Gears and Slide Bearings, Mashgiz, 1948 [1]. The above work is based on the GOST 3058-45 which was later superseded by the GOST 3058-54. The new GOST gives for the flanking angles considerably lesser values (sometimes by twice smaller) than is the case with the GOST 3048-45. The purpose of this article is to establish the optimum flanking angles when meshing different pairs of toothed wheels. The authors analyze two cases: 1) Driv-

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